

## ABSTRACT OF INVENTION

The present invention relates to a synthesis method of carbon nanotubes, and more particularly to an apparatus for a mass synthesis of carbon nanotubes in gas phase using an atmospheric-pressure microwave plasma torch. The method and apparatus is described for the continuous production of carbon nanotubes by making use of a microwave plasma torch operated at a frequency of 2.45 GHz, by introducing a transition metal catalyst precursor and a carbon containing gas into the microwave plasma torch to produce atomized catalyst metal and to decompose the carbon containing gas, by passing the resulting gaseous mixtures through a furnace, and by quenching rapidly and collecting the products so formed at the exit of the furnace. The resultant products are the carbon nanotubes.